

PATENT COOPERATION T^RY

PCT

NOTIFICATION RELATING TO PRIORITY CLAIM

(PCT Rules 26bis.1 and 26bis.2 and
Administrative Instructions, Sections 402 and 409)

From the INTERNATIONAL BUREAU

To:

KLEIN, Bart
Koninklijke KPN N.V.
P.O. Box 95321
NL-2509 CH The Hague
PAYS-BAS

Date of mailing (day/month/year) 18 January 2000 (18.01.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 402518 WO	
International application No. PCT/EP99/07773	International filing date (day/month/year) 11 October 1999 (11.10.99)
Applicant KONINKLIJKE KPN N.V et al	

The applicant is hereby **notified** of the following in respect of the priority claim(s) made in the international application.

1. ☒ **Correction of priority claim.** In accordance with the applicant's notice received on: **30 November 1999 (30.11.99)**, the following priority claim has been corrected to read as follows:

NL 12 October 1998 (12.10.98) 1010295

☐ even though the indication of the number of the earlier application is missing.

☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
2. ☐ **Addition of priority claim.** In accordance with the applicant's notice received on: , the following priority claim has been added:

☐ even though the indication of the number of the earlier application is missing.

☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
3. ☐ As a **result of the correction and/or addition** of (a) priority claim(s) under items 1 and/or 2, the (earliest) priority date is:
4. ☐ **Priority claim considered not to have been made.**

☐ The applicant failed to respond to the Invitation under Rule 26bis.2(a) (Form PCT/IB/316) within the prescribed time limit.

☐ The applicant's notice was received after the expiration of the prescribed time limit under Rule 26bis.1(a).

☐ The applicant's notice failed to correct the priority claim so as to comply with the requirements of Rule 4.10.

The applicant may, before the technical preparations for international publication have been completed and subject to the payment of a fee, request the International Bureau to publish, together with the international application, information concerning the priority claim. See Rule 26bis.2(c) and the PCT Applicant's Guide, Volume I, Annex B2(IB).
5. ☐ In case where **multiple priorities** have been claimed, the above item(s) relate to the following priority claim(s):
6. A copy of this notification has been sent to the receiving Office and
 - ☒ to the International Searching Authority (where the international search report has not yet been issued).
 - ☒ the designated Offices (which have already been notified of the receipt of the record copy).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer Athina Nickitas-Etienne Telephone No. (41-22) 338.83.38
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PCT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing: 20 April 2000 (20.04.00)	
International application No.: PCT/EP99/07773	Applicant's or agent's file reference: 402518 WO
International filing date: 11 October 1999 (11.10.99)	Priority date: 12 October 1998 (12.10.98)
Applicant: VENEMANS, Pieter, Hendrik, Albert	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International preliminary Examining Authority on:
04 February 2000 (04.02.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer: J. Zahra Telephone No.: (41-22) 338.83.38
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The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ EP

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty and hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
International application No. PCT/EP99/07773	Applicant's or agent's file reference 402518WO
International filing date (day/month/year) (11.10.99) 11 OCT 1999	(Earliest) Priority date (day/month/year) (12.12.98) 12 DEC 1998
Title of invention ATM connection admission control device for DBR connections	
Box No. II APPLICANT(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) KONINKLIJKE KPN N.V. 7 Stationsplein 9726 AE GRONINGEN The Netherlands	Telephone No.: +31 70 332 36 78 Facsimile No.: +31 70 332 38 40 Teleprinter No.:
State (that is, country) of nationality: NL	State (that is, country) of residence: NL
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.) VEN EMANS, Pieter Hendrik Albert Potgieterlaan 1 2624 DC DELFT The Netherlands	
State (that is, country) of nationality: NL	State (that is, country) of residence: NL
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
State (that is, country) of nationality:	State (that is, country) of residence:
<input type="checkbox"/> Further applicants are indicated on a continuation sheet.	

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☒ agent ☐ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

KRUK, Wiggert Johan
 KONINKLIJKE KPN N.V.
 P.O. BOX 95321
 2509 CH The Hague
 The Netherlands

Telephone No.:

+31 70 332 36 78

Facsimile No.:

+31 70 332 38 40

Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:***

1. The applicant wishes the international preliminary examination to start on the basis of:

☒ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☒ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☐ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☐ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV. for the purposes of international preliminary examination:

- | | | |
|--------------------------------------------------------------------------|---|--------|
| 1. translation of international application | : | sheets |
| 2. amendments under Article 34 | : | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | sheets |
| 5. letter | : | sheets |
| 6. other (specify) | : | sheets |

For International Preliminary Examining Authority use only

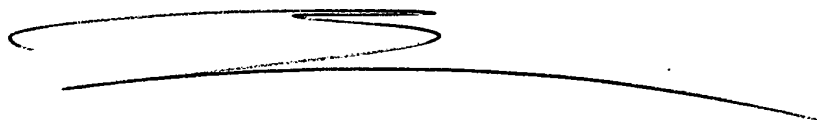
received	not received
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>

The demand is also accompanied by the item(s) marked below:

- | | |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> fee calculation sheet | 4. <input type="checkbox"/> statement explaining lack of signature |
| 2. <input type="checkbox"/> separate signed power of attorney | 5. <input type="checkbox"/> nucleotide and or amino acid sequence listing in computer readable form |
| 3. <input checked="" type="checkbox"/> copy of general power of attorney; reference number, if any: GA 21396 | 6. <input type="checkbox"/> other (specify): |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).



Wiggert Johan Kruk

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:
2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):
3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. ☐ The applicant has been informed accordingly.
4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.
5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

PCT

CHAPTER II

FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">International application No.</td> <td style="width: 50%;">PCT/EP99/07773</td> </tr> <tr> <td>Applicant's or agent's file reference</td> <td>402518W0</td> </tr> </table>	International application No.	PCT/EP99/07773	Applicant's or agent's file reference	402518W0	<p>For International Preliminary Examining Authority use only</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>											
International application No.	PCT/EP99/07773															
Applicant's or agent's file reference	402518W0															
<p>Applicant</p> <p>KONINKLIJKE KPN N.V.</p>																
<p>Calculation of prescribed fees</p> <table style="width: 100%;"> <tr> <td style="width: 60%;">1. Preliminary examination fee</td> <td style="width: 20%; text-align: center;">EUR 1533</td> <td style="width: 20%; text-align: center;">P</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i></td> <td style="text-align: center;">EUR 148</td> <td style="text-align: center;">H</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box</td> <td colspan="2" style="border: 1px solid black; text-align: center;"> <div style="margin-bottom: 5px;">EUR 1681</div> <div>TOTAL</div> </td> </tr> </table>		1. Preliminary examination fee	EUR 1533	P				2. Handling fee <i>(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)</i>	EUR 148	H				3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	<div style="margin-bottom: 5px;">EUR 1681</div> <div>TOTAL</div>	
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3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	<div style="margin-bottom: 5px;">EUR 1681</div> <div>TOTAL</div>															
<p>Mode of Payment</p> <table style="width: 100%;"> <tr> <td><input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)</td> <td><input type="checkbox"/> cash</td> </tr> <tr> <td><input type="checkbox"/> cheque</td> <td><input type="checkbox"/> revenue stamps</td> </tr> <tr> <td><input type="checkbox"/> postal money order</td> <td><input type="checkbox"/> coupons</td> </tr> <tr> <td><input type="checkbox"/> bank draft</td> <td><input type="checkbox"/> other (specify):</td> </tr> </table>		<input checked="" type="checkbox"/> authorization to charge deposit account with the IPEA (see below)	<input type="checkbox"/> cash	<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps	<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons	<input type="checkbox"/> bank draft	<input type="checkbox"/> other (specify):							
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<input type="checkbox"/> cheque	<input type="checkbox"/> revenue stamps															
<input type="checkbox"/> postal money order	<input type="checkbox"/> coupons															
<input type="checkbox"/> bank draft	<input type="checkbox"/> other (specify):															
<p>Deposit Account Authorization <i>(this mode of payment may not be available at all IPEAs)</i></p> <p>The IPEA/ EP <input checked="" type="checkbox"/> is hereby authorized to charge the total fees indicated above to my deposit account.</p> <p><input checked="" type="checkbox"/> <i>(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)</i> is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.</p> <div style="text-align: right; margin-top: 20px;"> </div>																
<p>28090011</p> <p>Deposit Account Number</p>	<p>2 February 2000</p> <p>Date (day/month/year)</p>	<p>Signature Wiggert Johan Kruk</p>														

1 **ALLGEMEINE VOLLMACHT**
GENERAL AUTHORISATION
POUVOIR GENERAL

Nur für amtlichen Gebrauch / For official use only
Cadre réservé à l'administration
Nr. der allgemeinen Vollmacht / General Authorisation No.
N° du pouvoir général

21396 (rev.)

2 Ich (Wir) / I (We) / Je (Nous)

Koninklijke KPN N.V.
Stationsplein 7
9726 AE GRONINGEN
The Netherlands

3 bevollmächtigt(n) hiermit / do hereby authorise / autorise (autorisons) par la présente

KLEIN, Bart (Professional Representative)
KRUK, Wiggert Johan (Professional Representative)

mailing address: Koninklijke KPN N.V.
Intellectual Property Group
P.O. Box 95321
2509 CH THE HAGUE
The Netherlands

4 mich (uns) in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten, alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive payments on my (our) behalf.

à me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen et, à ce titre, à agir en mon (notre) nom et à recevoir des paiements pour mon (notre) compte.

☒ Die Vollmacht gilt auch für Verfahren nach dem Vertrag über die internationale Zusammenarbeit auf dem Gebiet des Patentwesens.
This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.
Ce pouvoir s'applique également à toute procédure instituée par le Traité de coopération en matière de brevets.

☐ Weitere Vertreter sind auf einem gesonderten Blatt angegeben. / Additional representatives indicated on supplementary sheet.
Les autres mandataires sont mentionnés sur une feuille supplémentaire.

5 ☒ Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Le pouvoir pourra être délégué.

6 ☒ Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.
Please return the yellow copy, supplemented by the General Authorisation No., to the authoriser.
Prérez de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu The Hague

Datum / Date April 27, 1999

Unterschrift(en) / Signature(s)



KLEIN, Bart (Professional Representative)

7 Das Formblatt muß vom (von den) Vollmachtgeber(n) (bei juristischen Personen vom Unterschriftsberechtigten) eigenhändig unterzeichnet sein. Nach der Unterschrift bitte den (die) Namen des (der) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft angeben).

The form must bear the personal signature(s) of the authoriser(s) (in the case of legal persons, that of the officer empowered to sign). After the signature, please type the name(s) of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.


Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la machine, après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.

REC'D 13 JUN 2000

WIPO

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 402518 WO		FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP99/07773	International filing date (day/month/year) 11/10/1999	Priority date (day/month/year) 12/10/1998	
International Patent Classification (IPC) or national classification and IPC H04L12/56			
Applicant KONINKLIJKE KPN N.V. et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 4 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none">I <input checked="" type="checkbox"/> Basis of the reportII <input type="checkbox"/> PriorityIII <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicabilityIV <input type="checkbox"/> Lack of unity of inventionV <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statementVI <input type="checkbox"/> Certain documents citedVII <input checked="" type="checkbox"/> Certain defects in the international applicationVIII <input type="checkbox"/> Certain observations on the international application			
Date of submission of the demand 04/02/2000		Date of completion of this report 06.06.2000	
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized officer Lindner, A Telephone No. +31 70 340 3485	



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/07773

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-10 as originally filed

Claims, No.:

1 as originally filed

Drawings, sheets:

1/5-5/5 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/07773

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims 1
	No: Claims
Inventive step (IS)	Yes: Claims 1
	No: Claims
Industrial applicability (IA)	Yes: Claims 1
	No: Claims

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. State of the art:

The document D1 (EP 0 862 299 (NEC)) represents the closest prior art and discloses a device for connection admission control of an ATM switch, admitting different types of requested connections (D1, p.2, ln. 10-22) such that the QOS requirements of such connections are guaranteed (D1, p. 2, ln. 22 - 39).

2. Statement of the problem:

No prior art document suggests or hints at the problem of the limited number of connections that can be handled simultaneously for a given output port of the switch.

3. Solution of the problem:

No prior art document discloses or hints at implementing the device using two sub-devices, each issuing a positive or negative result. Only when both results are positive at the same time will a connection be granted by the ATM switch. This solution has the advantage of practical applicability, numerical stability and faster calculation time.

Thus, the requirements of novelty (Art. 33 (2) PCT), inventive step (Art. 33 (3) PCT) and industrial applicability (Art. 33 (4) PCT) are all met.

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

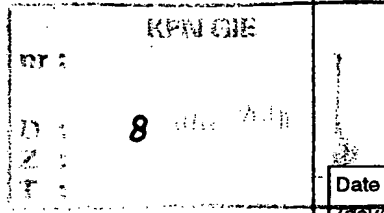
PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

KRUK, Wiggert J.
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS



NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year)

06.06.2000

Applicant's or agent's file reference
402518 WO

IMPORTANT NOTIFICATION

International application No.
PCT/EP99/07773

International filing date (day/month/year)
11/10/1999

Priority date (day/month/year)
12/10/1998

Applicant
KONINKLIJKE KPN N.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized officer

Kruydenberg, G

Tel. +31 70 340-2277



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 402518 WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP99/07773	International filing date (day/month/year) 11/10/1999	Priority date (day/month/year) 12/10/1998
International Patent Classification (IPC) or national classification and IPC H04L12/56		
Applicant KONINKLIJKE KPN N.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 4 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 04/02/2000	Date of completion of this report 06.06.2000
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer Lindner, A Telephone No. +31 70 340 3485 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/07773

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-10 as originally filed

Claims, No.:

1 as originally filed

Drawings, sheets:

1/5-5/5 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/EP99/07773

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1
	No:	Claims	

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. State of the art:

The document D1 (EP 0 862 299 (NEC)) represents the closest prior art and discloses a device for connection admission control of an ATM switch, admitting different types of requested connections (D1, p.2, ln. 10-22) such that the QOS requirements of such connections are guaranteed (D1, p. 2, ln. 22 - 39).

2. Statement of the problem:

No prior art document suggests or hints at the problem of the limited number of connections that can be handled simultaneously for a given output port of the switch.

3. Solution of the problem:

No prior art document discloses or hints at implementing the device using two sub-devices, each issuing a positive or negative result. Only when both results are positive at the same time will a connection be granted by the ATM switch. This solution has the advantage of practical applicability, numerical stability and faster calculation time.

Thus, the requirements of novelty (Art. 33 (2) PCT), inventive step (Art. 33 (3) PCT) and industrial applicability (Art. 33 (4) PCT) are all met.

Re Item VII

Certain defects in the international application

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this document identified therein.

22 FEB. 2000

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

POT KPN INTELLECTUAL PROPERTY GROUP

To:

KRUK, Wiggert J.
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))Date of mailing
(day/month/year)

16.02.00

Applicant's or agent's file reference

402518 WO

IMPORTANT NOTIFICATION

International application No.

PCT/EP 99/07773

International filing date (day/month/year)

11/10/1999

Priority date (day/month/year)

12/10/1998

Applicant

KONINKLIJKE KPN N.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

04/02/2000

2. This date of receipt is:



the actual date of receipt of the demand by this Authority (Rule 61.1(b)).



the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).



the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.



(If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/

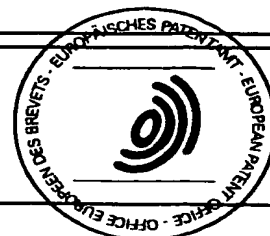


European Patent Office, P.B. 5818 Patentlaan 2
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Authorized officer

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PATENT COOPERATION TREATY

From the RECEIVING OFFICE

PCT

To:

Klein, Bart
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

NOTIFICATION OF THE INTERNATIONAL APPLICATION NUMBER AND OF THE INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

Date of mailing
(day/month/year)

23. 11. 99

Applicant's or agent's file reference

402518 WO

IMPORTANT NOTIFICATION

International application No.

PCT/EP 99/ 07773

International filing date (day/month/year)

11/10/1999

Priority date (day/month/year)

12/12/1998

Applicant

KONINKLIJKE KPN N.V.

Title of the invention

1. The applicant is hereby notified that the international application has been accorded the international application number and the international filing date indicated above.
2. The applicant is further notified that the record copy of the international application was transmitted to the International Bureau on the above date of mailing.
3. ☐ Other:

* The International Bureau monitors the transmittal of the record copy by the receiving Office and will notify the applicant (with Form PCT/IB/301) of its receipt. Should the record copy not have been received by the expiration of 14 months from the priority date, the International Bureau will notify the applicant (Rule 22.1(c)).

Name and mailing address of the receiving Office



European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Mrs. T. Bröcker-Tazelaar

PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

PCT/EP 99/07773

International Application No.

11 OCT 1999

(11.10.1999)

International Filing Date

EUROPEAN PATENT OFFICE

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference
(if desired) (12 characters maximum)

402518 WO

Box No. I TITLE OF INVENTION

ATM connection-admission control device for DBR connections

Box No. II APPLICANT

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

KONINKLIJKE KPN N.V.
Stationsplein 7
9726 AE GRONINGEN
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☐ This person is also inventor.

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Teleprinter No.

State (that is, country) of nationality:

NL

State (that is, country) of residence:

NL

This person is applicant
for the purposes of:

☐

all designated
States

☒

all designated States except
the United States of America

☐

the United States
of America only

☐

the States indicated in
the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)

VENEMANS
Pieter Hendrik Albert
Potgieterlaan 1
2624 DC Delft
The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only (If this check-box
is marked, do not fill in below.)

State (that is, country) of nationality:

NL

State (that is, country) of residence:

NL

This person is applicant
for the purposes of:

☐

all designated
States

☐

all designated States except
the United States of America

☒

the United States
of America only

☐

the States indicated in
the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:

☒

agent

☐

common representative

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

KLEIN, Bart
Koninklijke KPN N.V.
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Facsimile No.

+31 70 3323840

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No.V DESIGNATION OF STATES

The following designations are hereby made under Rule 4.9(a) (mark the applicable check-boxes; at least one must be marked):

Regional Patent

- ☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT
- ☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT
- ☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT
- ☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT (if other kind of protection or treatment desired, specify on dotted line)

National Patent (if other kind of protection or treatment desired, specify on dotted line):

- | | |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> AE United Arab Emirates | <input checked="" type="checkbox"/> LR Liberia |
| <input checked="" type="checkbox"/> AL Albania | <input checked="" type="checkbox"/> LS Lesotho |
| <input checked="" type="checkbox"/> AM Armenia | <input checked="" type="checkbox"/> LT Lithuania |
| <input checked="" type="checkbox"/> AT Austria | <input checked="" type="checkbox"/> LU Luxembourg |
| <input checked="" type="checkbox"/> AU Australia | <input checked="" type="checkbox"/> LV Latvia |
| <input checked="" type="checkbox"/> AZ Azerbaijan | <input checked="" type="checkbox"/> MD Republic of Moldova |
| <input checked="" type="checkbox"/> BA Bosnia and Herzegovina | <input checked="" type="checkbox"/> MG Madagascar |
| <input checked="" type="checkbox"/> BB Barbados | <input checked="" type="checkbox"/> MK The former Yugoslav Republic of Macedonia |
| <input checked="" type="checkbox"/> BG Bulgaria | |
| <input checked="" type="checkbox"/> BR Brazil | <input checked="" type="checkbox"/> MN Mongolia |
| <input checked="" type="checkbox"/> BY Belarus | <input checked="" type="checkbox"/> MW Malawi |
| <input checked="" type="checkbox"/> CA Canada | <input checked="" type="checkbox"/> MX Mexico |
| <input checked="" type="checkbox"/> CH and LI Switzerland and Liechtenstein | <input checked="" type="checkbox"/> NO Norway |
| <input checked="" type="checkbox"/> CN China | <input checked="" type="checkbox"/> NZ New Zealand |
| <input checked="" type="checkbox"/> CU Cuba | <input checked="" type="checkbox"/> PL Poland |
| <input checked="" type="checkbox"/> CZ Czech Republic | <input checked="" type="checkbox"/> PT Portugal |
| <input checked="" type="checkbox"/> DE Germany | <input checked="" type="checkbox"/> RO Romania |
| <input checked="" type="checkbox"/> DK Denmark | <input checked="" type="checkbox"/> RU Russian Federation |
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| <input checked="" type="checkbox"/> ES Spain | <input checked="" type="checkbox"/> SE Sweden |
| <input checked="" type="checkbox"/> FI Finland | <input checked="" type="checkbox"/> SG Singapore |
| <input checked="" type="checkbox"/> GB United Kingdom | <input checked="" type="checkbox"/> SI Slovenia |
| <input checked="" type="checkbox"/> GD Grenada | <input checked="" type="checkbox"/> SK Slovakia |
| <input checked="" type="checkbox"/> GE Georgia | <input checked="" type="checkbox"/> SL Sierra Leone |
| <input checked="" type="checkbox"/> GH Ghana | <input checked="" type="checkbox"/> TJ Tajikistan |
| <input checked="" type="checkbox"/> GM Gambia | <input checked="" type="checkbox"/> TM Turkmenistan |
| <input checked="" type="checkbox"/> HR Croatia | <input checked="" type="checkbox"/> TR Turkey |
| <input checked="" type="checkbox"/> HU Hungary | <input checked="" type="checkbox"/> TT Trinidad and Tobago |
| <input checked="" type="checkbox"/> ID Indonesia | <input checked="" type="checkbox"/> UA Ukraine |
| <input checked="" type="checkbox"/> IL Israel | <input checked="" type="checkbox"/> UG Uganda |
| <input checked="" type="checkbox"/> IN India | <input checked="" type="checkbox"/> US United States of America |
| <input checked="" type="checkbox"/> IS Iceland | |
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| <input checked="" type="checkbox"/> KE Kenya | <input checked="" type="checkbox"/> VN Viet Nam |
| <input checked="" type="checkbox"/> KG Kyrgyzstan | <input checked="" type="checkbox"/> YU Yugoslavia |
| <input checked="" type="checkbox"/> KP Democratic People's Republic of Korea | <input checked="" type="checkbox"/> ZA South Africa |
| | <input checked="" type="checkbox"/> ZW Zimbabwe |
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Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)

Supplemental B x If the Supplemental Box is not used, this sheet should not be included in the request.

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

- (i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;
- (ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;
- (iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;
- (iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;
- (v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;
- (vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;
- (vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed.

2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.



VENEMANS
Pieter Hendrik Albert

Box No. VI PRIORITY CLAIM		<input type="checkbox"/> Further priority claims are indicated in the Supplemental Box.		
Filing date of earlier application (day/month/year)	Number of earlier application	Where earlier application is:		
		national application: country	regional application:* regional Office	international application: receiving Office
item (1) (12/12/98) 12 DEC 1998	1010295	NL		
item (2)				
item (3)				

☐ The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) (only if the earlier application was filed with the Office which for the purposes of the present international application is the receiving Office) identified above as item(s):

* Where the earlier application is an ARIPO application, it is mandatory to indicate in the Supplemental Box at least one country party to the Paris Convention for the Protection of Industrial Property for which that earlier application was filed (Rule 4.10(b)(ii)). See Supplemental Box.

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA)
(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):

ISA/ EP

Request to use results of earlier search; reference to that search (if an earlier search has been carried out by or requested from the International Searching Authority):

Date (day/month/year) Number Country (or regional Office)

20 MAY 1999 SN 31958 NL NL

Box No. VIII CHECK LIST; LANGUAGE OF FILING

This international application contains the following number of sheets:

request : 4
description (excluding sequence listing part) : 10
claims : 2
abstract : 1
drawings : 5
sequence listing part of description : 5

Total number of sheets : 22

This international application is accompanied by the item(s) marked below:

1. ☒ fee calculation sheet
2. ☒ separate signed power of attorney
3. ☐ copy of general power of attorney; reference number, if any:
4. ☐ statement explaining lack of signature
5. ☒ priority document(s) identified in Box No. VI as item(s):
6. ☐ translation of international application into (language):
7. ☐ separate indications concerning deposited microorganism or other biological material
8. ☐ nucleotide and/or amino acid sequence listing in computer readable form
9. ☒ other (specify): search report

Figure of the drawings which should accompany the abstract: 1

Language of filing of the international application: English

Box No. IX SIGNATURE OF APPLICANT OR AGENT

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).



KLEIN, Bart

For receiving Office use only		2. Drawings: <input checked="" type="checkbox"/> received: <input type="checkbox"/> not received:
1. Date of actual receipt of the purported international application:	11 OCT 1999 (11.10.1999)	
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:		
4. Date of timely receipt of the required corrections under PCT Article 11(2):		
5. International Searching Authority (if two or more are competent): ISA/	6. <input type="checkbox"/> Transmittal of search copy delayed until search fee is paid.	

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

A device for Connection Admission Control (CAC) for an ATM switch, intended for admitting to the Deterministic Bit Rate (DBR) switch a requested ATM connection of the DBR type, such that the "Quality of Service" of all ATM connections of the DBR type in said switch continues to satisfy certain conditions: For the composite traffic stream of DBR connections at an output port with capacity C , a single buffer with capacity B is available, while as boundary condition it holds that the total average load of the output port does not amount to more than $\rho \times C$, where ρ is a constant with a value between 0 and 1. The CAC device comprises two sub-devices, which each execute a – rather complex – partial calculation, resulting in a positive or negative admission signal. The new ATM connection is only granted admission to the switch if both sub-devices emit a positive admission signal.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece			TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
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BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
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CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

Title: ATM Connection Admission Control device for DBR connections

BACKGROUND OF THE INVENTION

The invention is related to a device for Connection Admission Control (CAC) for an ATM switch, intended for admitting to said ATM switch an additional traffic stream, via an additional ATM connection of the DBR type, such that the "Quality of Service" of all DBR connections in said switch continues to meet certain conditions, a single buffer with capacity B being available for the composite traffic stream of all DBR connections at an output port with capacity C, while, as boundary condition, the total average load of the output port does not amount to more than $\rho \times C$, where ρ is a constant with a value between 0 and 1.

General

Asynchronous Transfer Mode (ATM) is a network technique allowing connections to be made in a uniform manner with varying characteristics. The transport of data takes place by means of uniform cells with a length of 53 octets. With the aid of ATM, connections can be established with varying network guarantees with respect to cell loss, cell delay, cell delay variation and throughput by selecting a "Quality of Service" (QoS) class [I.356] and an "ATM Transfer Capability" (ATC) [I.371].

Guaranteeing the values of the QoS parameters in advance is a characteristic which is focussed upon in ATM networks. In order to satisfy certain (possibly very stringent) requirements with respect to the Quality of Service in advance, including the cell loss probability, a decision must be made for each requested connection whether the latter can or cannot be admitted to an ATM switch. Connections are only admitted if the Quality of Service of the connections which make use of the ATM

switch do not exceed the limits set in advance. The entirety of methods which determine admittance or non-admittance of a requested ATM connection is called a Connection Admission Control (CAC) algorithm, a device for executing a CAC algorithm
5 being called a CAC device.

The said "ATM Transfer Capability" (ATC) describes the parameters by which an ATM connection is characterised. The ATC referred to here comprises the "Deterministic Bit Rate" (DBR) which is established in [I.371]. In this case, an ATM
10 connection is characterised by two parameters: the Peak Cell Rate (PCR) and the Cell Delay Variation Tolerance (CDVT). The PCR represents the maximum speed at which a connection may drive cells; the CDVT is a measure for the tolerance in the PCR. The entity CDVT denotes the degree in which the actual
15 speed may exceed the PCR during (as a rule very short) periods of time. In order to guarantee the Quality of Service of all connections, a Usage Parameter Control (UPC) device monitors whether each of the connections indeed satisfies its characteristic during the operating period of a connection. If
20 this is not the case, then the UPC device can resort to removing cells of the related connection from the traffic stream.

The invention relates, as indicated above, to a device which can be used for the CAC of an ATM switch, and indeed in
25 particular for connections which satisfy the specifications of the "Deterministic Bit Rate" Transfer Capability.

THE PRIOR ART

A simple but inaccurate method for executing CAC for connections which are characterised by values for PCR and CDVT,
30 is leaving the last parameter completely out of consideration. The method then restricts itself to determining whether sufficient capacity is available for the sum of the peak cell rates of the connections at the related output port. In this case, two matters are disregarded:

- The fact that the traffic streams of the various connections consist of discrete cells, instead of continuous streams. As a result, several cells can be routed to one specific output port at (approximately) the same time when various traffic streams are mixed. In order to prevent cell loss in such situations, it is customary to use an output buffer. The said simple method for CAC, however, does not take into account the consequences of such a buffer, such as cell loss as a result of a finite buffer capacity and delay.
- The fact that the traffic streams of the various connections can show fluctuations, in which case the momentary cell rate can temporarily exceed the nominal peak cell rate. Said fluctuations are possible if the Cell Delay Variation Tolerance (CDVT) of the connections is greater than zero. Through said fluctuations it is possible that, when an output buffer is used, the required amount of buffer capacity is, in reality, greater than that for "ideal" DBR connections (with CDVT being equal to 0). This can lead to unforeseen cell loss and/or extra delay.

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The literature describes a number of methods in which the above-mentioned two problems are recognised and both the discrete character of ATM traffic streams as well as the fact that the momentary cell rate of a connection can temporarily exceed its PCR are taken into account. In [E.736] it is described that this problem can be solved by either "shaping" all traffic streams (that is to say, delaying cells in such a way that the cells of the resulting traffic streams have an intermediate arrival time of exactly $1/PCR$). The resulting traffic stream can then be characterised by a CDVT which is equal to 0.

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In the aforementioned reference, the "maximum burst rate" is introduced of a connection which is characterised by values for PCR and CDVT. Said maximum burst rate is the required buffer capacity to lead the related traffic stream, in an ideal

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situation and without cell loss, over an imaginary buffer (without mixing of other traffic streams), assuming that the said imaginary buffer has a constant exit speed equal to PCR.

In [Gravey97] a solution with "shaping" is also proposed, albeit that connections are shaped such that their maximum burst rate is limited and small (smaller than or equal to 2).

A disadvantage of said methods is that "shaping" is not possible with all ATM switches and that introducing extra shapers in the network can be undesirable. For these reasons, [E.736] also describes a method for the case that connections have a known maximum burst rate, b_{MAX} . Said connections are then approximated by a b_{MAX} batch Poisson process. This method has the disadvantage of (1) the Poisson process being an over-estimation of the traffic, which leads to less connections being able to be admitted than is actually possible on the basis of the required QoS guarantees, and (2) the assumption of an unequivocally determined b_{MAX} for all connections, which can be unnecessarily inefficient in practice. In practice, namely, said value for b_{MAX} could be quite high. In [Gravey97] it is shown that the maximally allowable load of the ATM network decreases for increasing values of b_{MAX} .

[COST242] describes the method essentially as in [E.736], but refines it. The maximum batches which are used for approximation by Poisson batches do not always need to be the same as in [E.736], but are dependent upon the speed of the multiplexer. For a universally valid model, the batches must indeed be just as large as those of a Poisson process by which the traffic stream is approximated.

[Mignau96] describes methods which are not based on the Poisson method but on the $NxD/D/1$ - method, which is described below. For sources in which the maximum burst rate can assume exactly two values, a complex model is described in [Cidon95]. Said model is numerically unstable, however, and requires long calculation times.

The Nx D/D/1-model.

One of the models on which the present invention is based is the Nx D/D/1 - model. This model provides the probability distribution of the length of the queue in a system consisting of a buffer which is controlled by one server. Said system is supplied by N ideal (i.e. CDVT equal to 0) and equal traffic streams, each having an inter-cell arrival time of magnitude D and with initial starting times uniformly distributed over an interval of magnitude D. The unit of time is the time required to control one cell. In [Cost242] it is put forward that the probability of the buffer use exceeding a certain value B is equal to:

$$\sum_{n=B+1}^N \binom{N}{n} \left(\frac{n-B}{D} \right)^n \left(1 - \frac{n-B}{D} \right)^{N-n} \frac{D-N+B}{D-n+B}.$$

This formula will be designated here by $Q_p^N(B)$. In [COST242] it is also put forward that this formula also provides a good upper limit for the probability of excess if the streams have different inter-cell arrival times.

SUMMARY OF THE INVENTION

The invention seeks to provide in a device of the kind indicated in the preamble, which is pre-eminently suitable as CAC for ATM connections of the DBR type, in which both the discrete character of the traffic streams as well as the fact that the cell rate of each of the individual connections can show fluctuations above its nominal peak cell rate are taken into account. It distinguishes itself favourably from CAC devices based on the methods in the literature with respect to the following aspects:

- More efficient: the device according to the invention has the property that the maximum number of connections able to be

mixed is not limited much more than strictly necessary to prevent buffer overflow and thereby cell loss.

- Better suited to practical situations: in the current ATM networks, it is customary to select the CDVT such that this is a constant when it is expressed in the unit of time, which has as a result that the previously defined maximum burst rate b_{MAX} is dependent upon the peak cell rate of the connection; for this reason no unequivocal maximum burst rate can be established, which is a point of departure for the methods in the literature.
- Better practical applicability: the method used by the device according to the invention is practically applicable, numerically stable and has a faster calculation time.

Although the methods in the literature are also practically applicable, the CAC device according to the invention combines a high efficiency with practical applicability. The CAC device according to the invention also provides the possibility of optimising the maximum number of allowable connections by selecting a certain value for the freely selectable constant K , albeit that this must be a whole number greater than or equal to 0. In many cases, the optimal value for K will depend on the most frequently occurring values of the CDVT of the ATM connections.

The CAC device according to the invention comprises two sub-devices, each issuing a positive or negative result (signal).

The result of the whole device will be positive only if both sub-devices issue a positive result (signal), and only then will a new connection to the ATM switch be grantable. The first sub-device determines whether sufficient bandwidth is available for the set of connections V , of which each connection v_i is characterised by values for PCR_i and $CDVT_i$, which, after possible admission of the new connection, will make use of a certain output port; the second sub-device determines whether

the available buffer capacity for the related port is sufficient.

The first sub-device comprises:

- An arithmetic unit which determines the sum (ΣPCR) of the values of PCR_i of each of the connections v_i of the set V . Said sum is subsequently compared with the product of ρ and C . If the said sum is less than or equal to said product, then the result of the sub-device is positive; otherwise the result is negative.

The second sub-device comprises:

- An arithmetic unit which calculates a certain buffer size $b_{s,i}$ for each of the connections v_i of the set V . Said buffer size is equal to either $b_{max,i}$ minus the constant value K if $b_{max,i}$ is greater than or equal to K , or equal to 0 if $b_{max,i}$ is less than K . For buffer size $b_{max,i}$ it holds that it is possible, in an ideal situation, to conduct the related traffic stream without cell loss over an imaginary buffer with buffer size $b_{max,i}$ and exit speed PCR_i (without mixing with other traffic streams). $b_{max,i}$ is calculated by the device by determination of the product of PCR_i and $CDVT_i$.
- An arithmetic unit which determines the sum of the calculated values $b_{s,i}$ for all connections of the set V . Said sum will be designated here by B_s .
- An arithmetic unit which determines a buffer size B_N , for which it holds that it is possible to multiplex N imaginary, identical traffic streams with constant cell rate, using a buffer of size B_N , and indeed such that the probability of cell loss as a result of buffer overflow will not exceed the given value of ε . N is here the number of connections in set V . It is also assumed that the average degree of occupation at the output of the buffer is equal to ρ . The buffer capacity B_N is determined by application of the previously introduced $N \times D/D/1$ model, where the probability of a buffer

level of B cells being exceeded is designated by $Q_D^N(B)$. The arithmetic unit determines the lowest value of B, such that $Q_D^N(B) < \varepsilon$, where N is equal to the number of sources, D is equal to N / ρ and $Q_D^N(B)$ is the formula as given above or a sufficiently accurate approximation thereof. The value of B found in this way forms the value of B_N .

- An arithmetic unit which multiplies the calculated value B_N by the constant K. For this result, to be referred to here as B_{NK} , it holds that it is possible to multiplex N imaginary, identical traffic streams, each with a burst rate of K, using a buffer of size B_{NK} , such that the probability of cell loss as a result of buffer overflow will not exceed the given value of ε . In this regard it will be assumed that the average degree of occupation at the output of the buffer is equal to ρ .
- An arithmetic unit which determines the sum of the calculated values for B_S and B_{NK} . Said value is designated here by B_R .
- A device which compares the calculated value of B_R with the given capacity B of the output buffer. If the value of B_R is less than or equal to B, then the result of the sub-device is positive; if the value of B_R is greater than B, then the result of the sub-device is negative.

The operation of the device will be further explained hereinafter with reference to an implementation example.

DESCRIPTION OF THE FIGURE

Fig. 1 shows a CAC device in general. The traffic parameters (PCR and CDVT) of an arbitrary number of already existing ATM connections $v_1 \dots v_{N-1}$ are supplied to the CAC device, as well as the traffic parameters of a newly requested ATM connection v_N . A maximally allowable cell loss probability parameter ε is furthermore supplied, as well as the applicable buffer capacity B and link capacity C. A maximally allowable degree of

occupation p is also supplied. The result of the device is an "admit/reject" signal, on the basis of which the requested ATM connection v_N is or is not admitted to the ATM switch.

Fig. 2 shows a diagrammatic overview of a CAC device according to the invention. The CAC device is composed of a sub-device 1 and a sub-device 2. Each sub-device can emit a positive ("admit") or a negative ("reject") signal. Both signals are supplied to a logical AND port 3, of which the output signal is only positive if both input signals are positive.

Fig. 3 shows sub-device 1 in more detail. The PCR values of the N ATM connections are summed (ΣPCR) in a device 4. In a device 5, the total capacity C of the output port is multiplied by a previously established coefficient p ($0 < p < 1$), corresponding to the desired maximum load. The result of the arithmetic unit 6 is positive if the value of ΣPCR calculated in device 4 is less than or equal to the product of $p \times C$ calculated by device 5; if that is not the case, the result is negative.

Fig. 4 diagrammatically shows the sub-device 2. The traffic parameters of ATM connection i are formed by the entities Peak Cell Rate (PCR_i) and Cell Delay Variation ($CDVT_i$). For each connection the sub-device 2 comprises a processor 7, which is shown in more detail in Fig. 5. In a device 13 (see Fig. 5), each of the processors 7 calculates by multiplication the maximum burst rate $b_{max,i}$ of the two said traffic parameters. The difference between $b_{max,i}$ and K ($b_{max,i} - K$) is calculated by a device 14. If this difference is 0 or positive, which is verified by a device 15, then $b_{s,i}$ is equal to the calculated difference of $b_{max,i} - K$; if the difference is less than 0, $b_{s,i}$ is equal to 0. Sub-device 2 (see Fig. 4 again) consists of a number of processors 7, one for each ATM connection. The $b_{s,i}$ results of each processor 7 are summed in a device 8 and result in a total value of B_s . The total number of ATM connections N is entered in arithmetic module 9. Said module determines the lowest value of B , such that $Q_D^N(B) < \varepsilon$. This results in a value

B_N . Said value B_N is multiplied by the constant value K in a device 10 and forms the value B_{NK} . Finally, a device 11 sums the values of B_S and B_{NK} and a device 12 compares the summed value with the given available buffer size B . If $B_S + B_{NK}$ is less than or equal to B , then a positive "admit" signal, or otherwise a negative "reject" signal, is emitted.

REFERENCES

- [I.371] ITU-T I.371: Traffic Control and Congestion Control in B-ISDN; ITU-T recommendation I.371 (08/96); Geneva, August 1996.
- [E.736] ITU Telecommunication Standardization Sector, Draft Recommendation E.736, "Methods for Cell Level Traffic Control in B-ISDN", 10 January 1997.
- [Mign96] J. Mignault, A. Gravey, C. Rosenberg, "A survey of straightforward statistical multiplexing models for ATM networks", Telecommunication Systems 5 (1996) 177-208.
- [Grav97] A. Gravey, J. Boyer, K. Sevilla, J. Mignault, Resource Allocation for Worst Case Traffic in ATM networks, Performance Evaluation 30 (1997), 19-43.
- [COST242] J. Roberts, U. Mocci, J. Virtamo (eds.), Broadband Network TeleTraffic -performance evaluation and design of broadband multiservice networks- Final Report of Action, COST 242, Lecture Notes in Computer Science Vol 1155, Springer-Verlag, Berlin; Heidelberg, 1996, ISBN 3-540-61815-5
- [Cidon95] I. Cidon, R. Guérin, I. Kessler and A. Khamisy, Analysis of a statistical multiplexer with generalized periodic sources, Queuing Systems 20 (1995) 139-169.
- [I.356] ITU-T I.356: B-ISDN ATM layer cell transfer performance; ITU-T recommendation I.356 (10/96); Geneva, October 1996.

CLAIMS

1. A device for Connection Admission Control for an ATM switch, intended for admitting to the switch a requested ATM connection of the DBR type, such that the "Quality of Service" of all ATM connections of the DBR type in said switch continues to satisfy certain conditions, in which a single buffer with capacity B is available for the composite traffic stream of DBR connections at an output port with capacity C, while as a boundary condition it holds that the total average load of the output port does not amount to more than $\rho \times C$, where ρ is a constant with a value between 0 and 1, **characterised in that** the device comprises two sub-devices which each emit a positive or negative admission signal, admission to the switch only being granted to the new ATM connection if both sub-devices issue a positive admission signal,

said first sub-device (1) comprising:

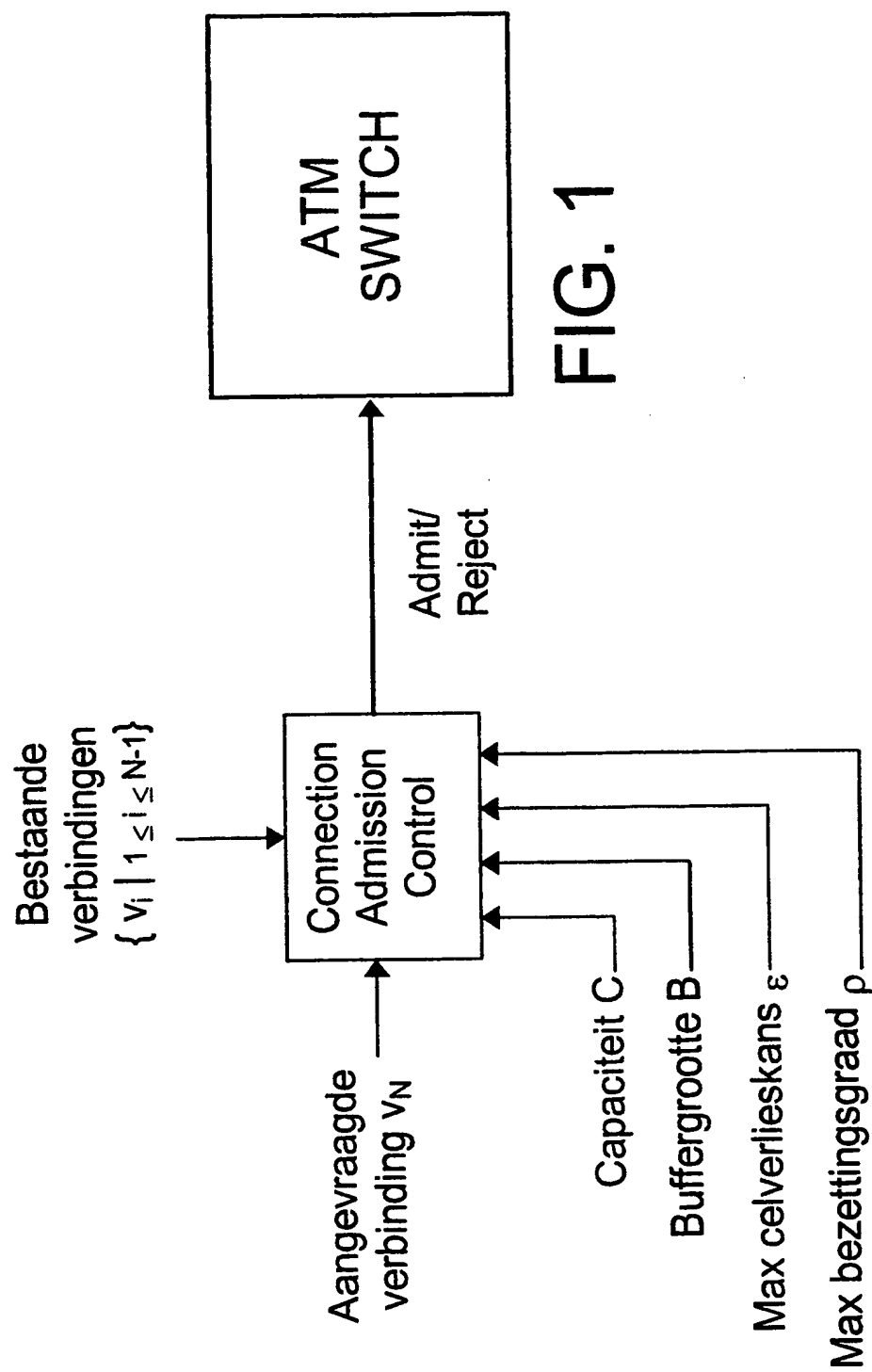
- a first arithmetic unit (4) which calculates the sum (Σ PCR) of the nominal traffic parameters Peak Cell Rate (PCR_i) of each of the ATM connections of the DBR type at the related output port, including the newly requested connection;
- a second arithmetic unit (6) which compares the calculated sum (Σ PCR) with the value of $\rho \times C$, the result of the first sub-device being negative if Σ PCR is greater than $\rho \times C$, and the result of the sub-device being positive if Σ PCR is less than or equal to $\rho \times C$;

and said second sub-device (2) comprising:

- for each of the ATM connections of the DBR type at the related output port, including the newly requested connection, a third arithmetic unit (7), which calculates a buffer capacity $b_{s,i}$, the value of $b_{s,i}$ being

equal to zero if the product of the nominal Peak Cell Rate (PCR_i) and Cell Delay Variation Tolerance ($CDVT_i$) of the related connection is less than or equal to the constant K , and the value of $b_{s,i}$ being equal to said product minus the value of K if said product is greater than K ;

- a fourth arithmetic unit (8) which calculates the sum (B_s) of the calculated values $b_{s,i}$ for all ATM connections at the related output port;
- a fifth arithmetic unit (9) which calculates a buffer capacity B_N , such that upon multiplexing of N independent, identical and ideal ($CDVT = 0$) traffic streams, using a single buffer with a buffer capacity of B_N , and assuming a maximum link load having a value of ρ , the average probability of cell loss as a result of buffer overflow will not exceed the given value of ϵ ;
- a sixth arithmetic unit (10) which calculates the product (B_{NK}) of the value of B_N and the constant value K ;
- a seventh arithmetic unit (11) which determines the sum (B_R) of the calculated values for B_s and B_{NK} ;
- a comparison device (12) which compares the calculated sum B_R with the given capacity B of the output buffer, a positive admission signal being emitted if the value of B_R is less than or equal to B , and a negative admission signal being emitted if the value of B_R is greater than B .



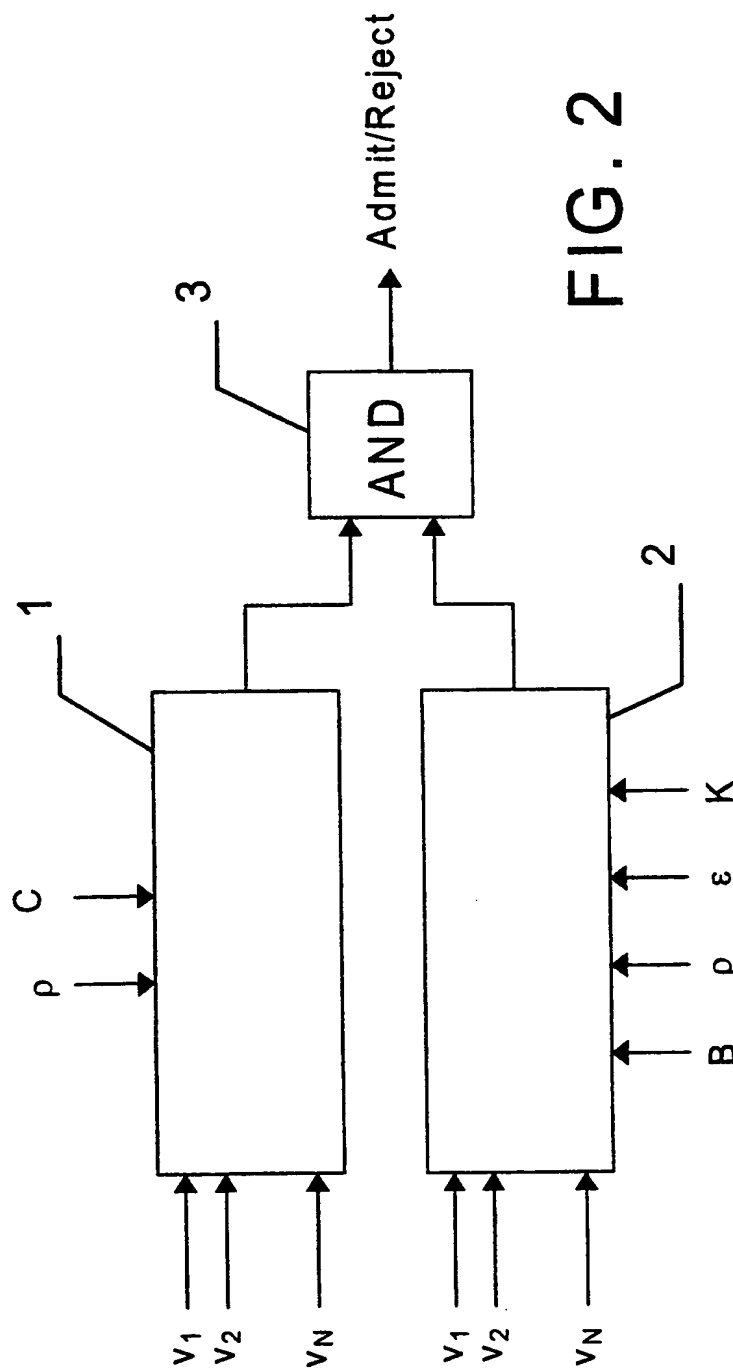


FIG. 2

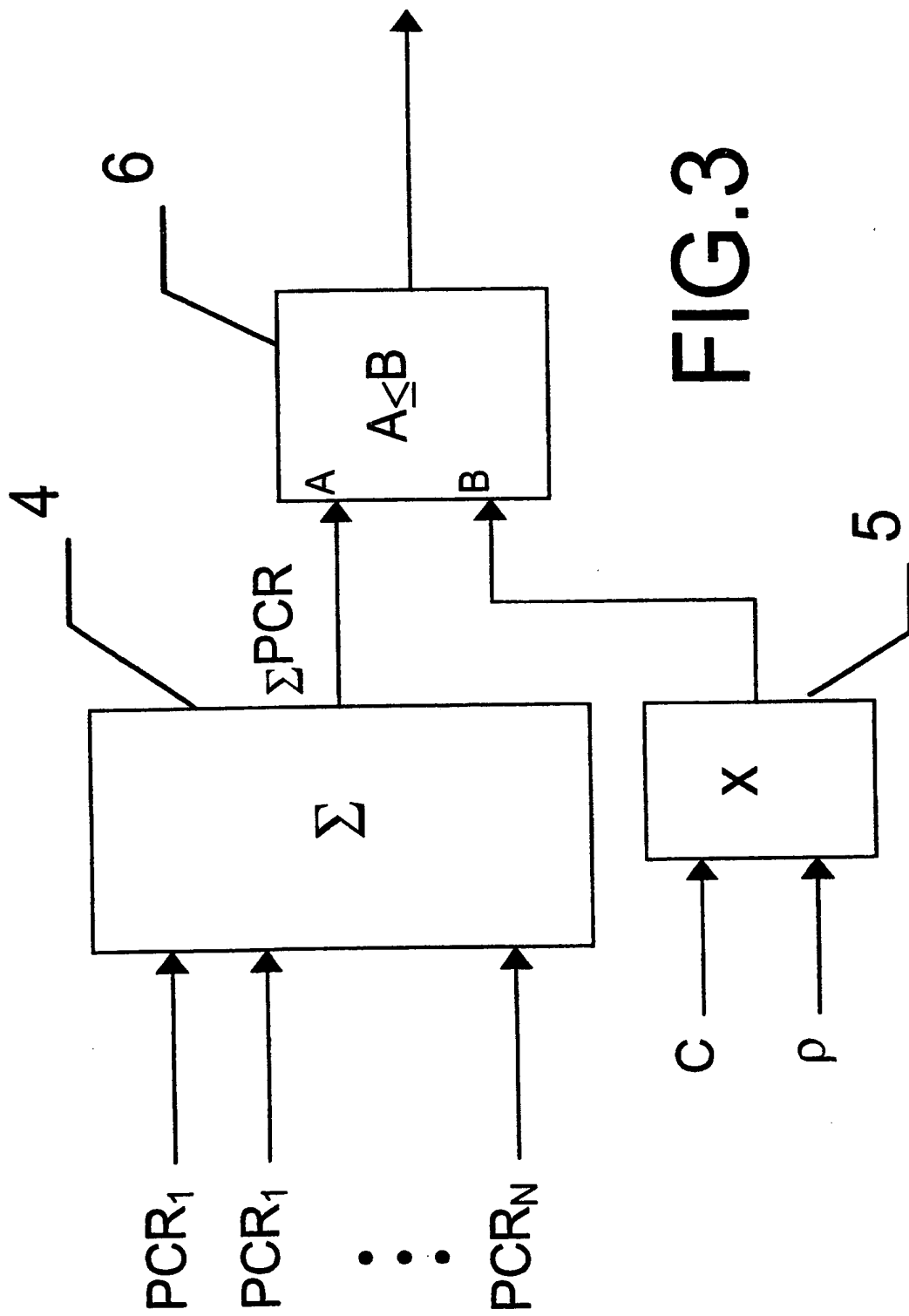


FIG.3

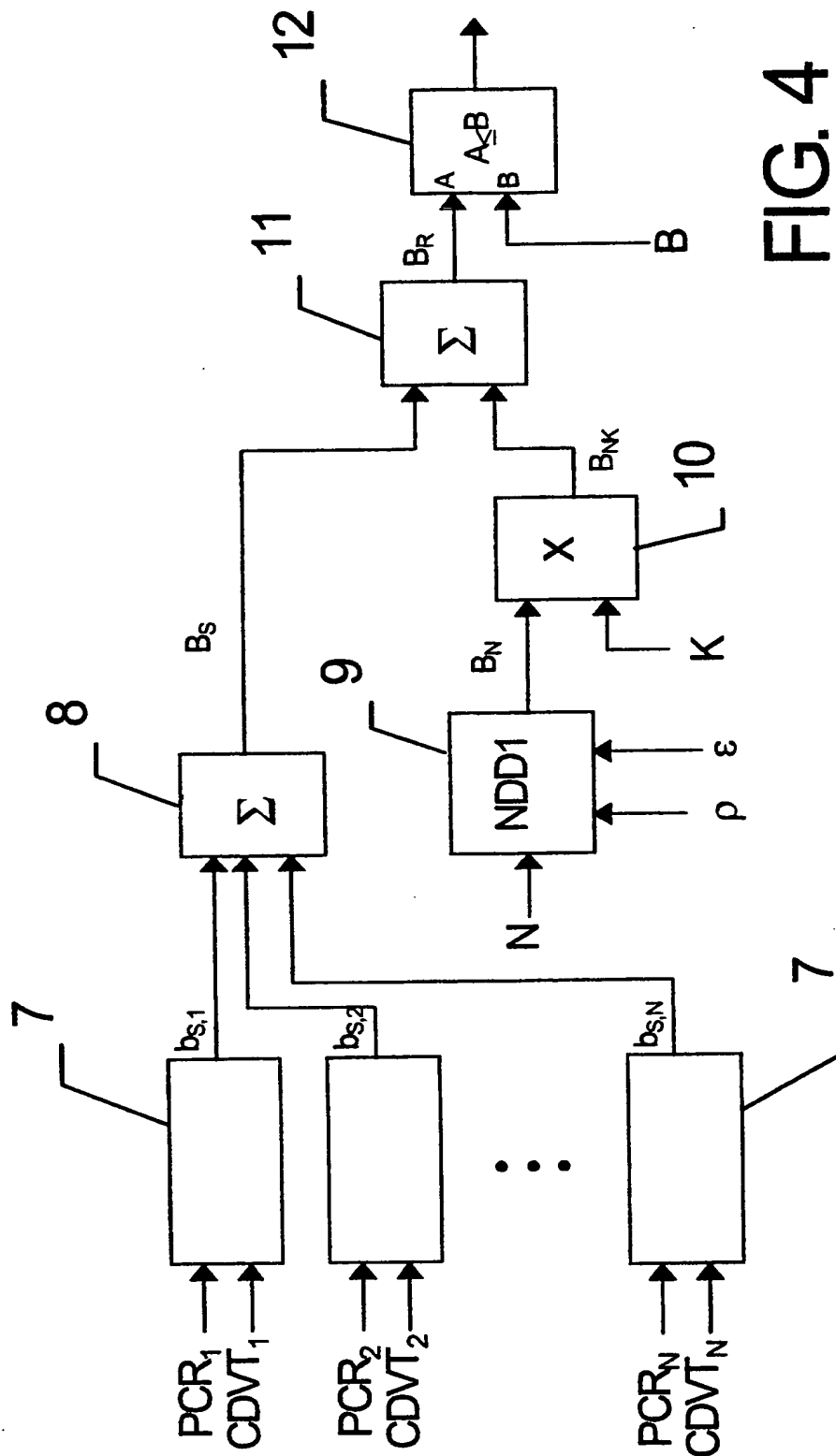


FIG. 4

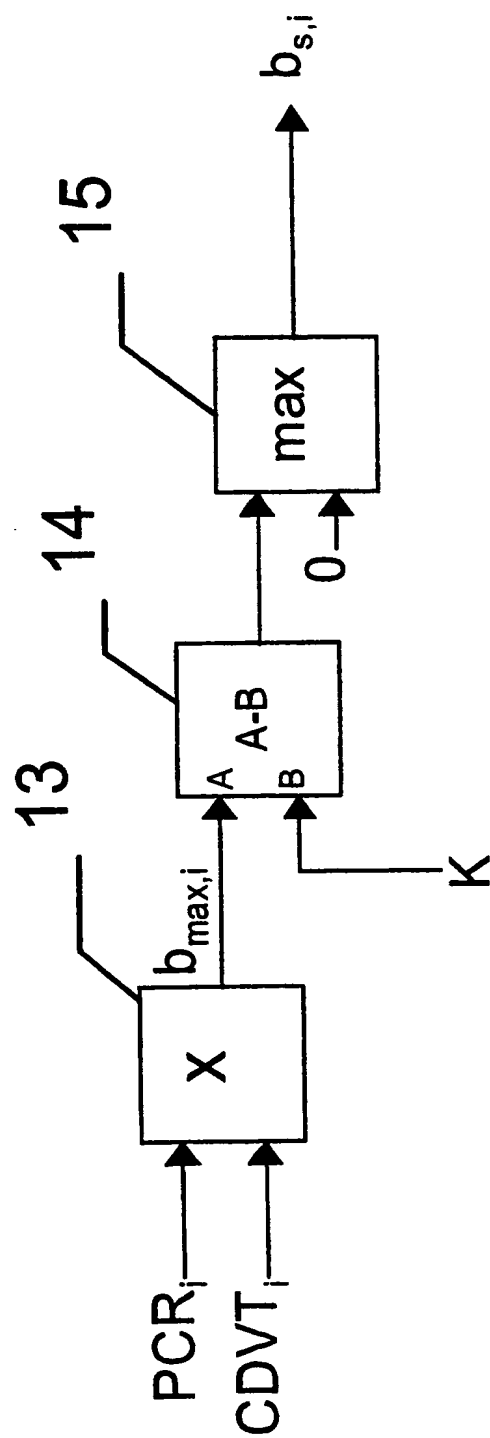


FIG. 5

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/07773

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L12/56 H04Q11/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 851 706 A (IBM) 1 July 1998 (1998-07-01) column 5, line 6 -column 14, line 20 ---	1
A	EP 0 862 299 A (NIPPON ELECTRIC CO) 2 September 1998 (1998-09-02) page 2, line 10 -page 3, line 41 -----	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 January 2000

Date of mailing of the international search report

31/01/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lindner, A

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To:

KONINKLIJKE KPN N.V.
Attn. Klein, Bart
P.O. Box 95321
NL-2509 CH Den Haag
NETHERLANDS

Date of mailing
(day/month/year)

31/01/2000

Applicant's or agent's file reference

402518 WO

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/EP 99/ 07773

International filing date
(day/month/year)

11/10/1999

Applicant

KONINKLIJKE KPN N.V. et al.

identisch aan M 6

1. ☒ The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority



European Patent Office, P.B. 5818 Patentlaan 2
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Fax: (+31-70) 340-3016

Authorized officer

Theresia Van Deursen

ES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 402518 WO	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 99/ 07773	International filing date (day/month/year) 11/10/1999	(Earliest) Priority Date (day/month/year) 12/12/1998
Applicant KONINKLIJKE KPN N.V. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1

☐ None of the figures.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is changed as follows:

line 1, after "Control" insert "(CAC)"

line 2, after "the" insert "Deterministic Bit Rate (DBR)"

INTERNATIONAL SEARCH REPORT

International Application No

CT/EP 99/07773

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04L12/56 H04Q11/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 851 706 A (IBM) 1 July 1998 (1998-07-01) column 5, line 6 -column 14, line 20 ---	1
A	EP 0 862 299 A (NIPPON ELECTRIC CO) 2 September 1998 (1998-09-02) page 2, line 10 -page 3, line 41 -----	1



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

19 January 2000

Date of mailing of the international search report

31/01/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Lindner, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 99/07773

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0851706	A	01-07-1998	NONE		
EP 0862299	A	02-09-1998	CA	2230633 A	28-08-1998
			JP	10276222 A	13-10-1998

TENT COOPERATION TREATY

PCT

NOTIFICATION RELATING TO PRIORITY CLAIM

(PCT Rules 26bis.1 and 26bis.2 and
Administrative Instructions, Sections 402 and 409)

From the INTERNATIONAL BUREAU

To:

KLEIN, Bart
Koninklijke KPN N.V.
P.O. Box 95321
NL-2509 CH The Hague
PAYS-BAS

Date of mailing (day/month/year) 18 January 2000 (18.01.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 402518 WO	
International application No. PCT/EP99/07773	International filing date (day/month/year) 11 October 1999 (11.10.99)
Applicant KONINKLIJKE KPN N.V et al	

The applicant is hereby notified of the following in respect of the priority claim(s) made in the international application.

1. ☒ **Correction of priority claim.** In accordance with the applicant's notice received on: 30 November 1999 (30.11.99), the following priority claim has been corrected to read as follows:

NL 12 October 1998 (12.10.98) 1010295

☐ even though the indication of the number of the earlier application is missing.

☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
2. ☐ **Addition of priority claim.** In accordance with the applicant's notice received on: , the following priority claim has been added:

☐ even though the indication of the number of the earlier application is missing.

☐ even though the following indication in the priority claim is not the same as the corresponding indication appearing in the priority document:
3. ☐ As a result of the correction and/or addition of (a) priority claim(s) under items 1 and/or 2, the (earliest) priority date is:
4. ☐ **Priority claim considered not to have been made.**

☐ The applicant failed to respond to the Invitation under Rule 26bis.2(a) (Form PCT/IB/316) within the prescribed time limit.

☐ The applicant's notice was received after the expiration of the prescribed time limit under Rule 26bis.1(a).

☐ The applicant's notice failed to correct the priority claim so as to comply with the requirements of Rule 4.10.

The applicant may, before the technical preparations for international publication have been completed and subject to the payment of a fee, request the International Bureau to publish, together with the international application, information concerning the priority claim. See Rule 26bis.2(c) and the PCT Applicant's Guide, Volume I, Annex B2(II).
5. ☐ In case where multiple priorities have been claimed, the above item(s) relate to the following priority claim(s):
6. A copy of this notification has been sent to the receiving Office and
 - ☒ to the International Searching Authority (where the international search report has not yet been issued).
 - ☒ the designated Offices (which have already been notified of the receipt of the record copy).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer Athina Nickitas-Etienne <i>AN</i> Telephone No. (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

From the INTERNATIONAL BUREAU

**NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT**

(PCT Administrative Instructions, Section 411)

To:

KLEIN, Bart
Koninklijke KPN N.V.
P.O. Box 95321
NL-2509 CH The Hague
PAYS-BAS

Date of mailing (day/month/year) 18 January 2000 (18.01.00)	
Applicant's or agent's file reference 402518 WO	IMPORTANT NOTIFICATION
International application No. PCT/EP99/07773	International filing date (day/month/year) 11 October 1999 (11.10.99)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 12 October 1998 (12.10.98)
Applicant KONINKLIJKE KPN N.V et al	

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed** to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
12 Octo 1998 (12.10.98)	1010295	NL	25 Nove 1999 (25.11.99)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

Athina Nickitas-Etienne

Telephone No. (41-22) 338.83.38